Universidad Carlos III de Madrid
www.uc3m.es

Working Papers in Economic History

February 2009 WP 09-01

Old World versus New World: the origins of organizational diversity in the international wine industry, 1850-1914

James Simpson

Abstract

Wine production in Europe today is dominated by small family vineyards and cooperative wineries, while in the New World viticulture and viniculture is highly concentrated and vertically integrated. This paper argues that these fundamental organizational differences appeared from the turmoil in wine markets at the turn of the twentieth century. As technological change endangered existing rents, growers, wine-makers, and merchants lobbied governments to introduce laws and create new institutions that regulated markets in their favor. The political voice and bargaining power of the economic agents varied greatly both within, and between, countries, leading to the introduction of very different policies.

Keywords: wine history, farm organization, vertical co-ordination, agricultural commodity chains, cooperatives, appellations.

JEL Classification: L14, N51, Q13

James Simpson : Departamento de Historia Económica e Instituciones e Instituto Figuerola de Historia Económica, Universidad Carlos III de Madrid, C/Madrid 126, 28903 Getafe, Spain.

Email: james@clio.uc3m.es

http://www.uc3m.es/portal/page/portal/dpto_historia_economica_inst/profesorado/james_simpson

UNIVERSIDAD CARLOS III DE MADRID • c/ Madrid 126 • 28903 Getafe (Spain)• Tel: (34) 91 624 96 37

Site: http://www.uc3m.es/uc3m/dpto/HISEC/working_papers/working_papers_general.html

DEPARTAMENTO DE
HISTORIA ECONÓMICA
E INSTITUCIONES

INSTITUTO FIGUEROLA
DE HISTORIA ECONÓMICA
Universidad Carlos III de Madrid

Old World versus New World: the origins of organizational diversity in the international wine industry, 1850-1914[1]

James Simpson
Universidad Carlos III de Madrid. Departamento de Historia Económica e Instituciones
Instituto Figuerola de Historia Económica

Abstract:
Wine production in Europe today is dominated by small family vineyards and cooperative wineries, while in the New World viticulture and viniculture is highly concentrated and vertically integrated. This paper argues that these fundamental organizational differences appeared from the turmoil in wine markets at the turn of the twentieth century. As technological change endangered existing rents, growers, wine-makers, and merchants lobbied governments to introduce laws and create new institutions that regulated markets in their favor. The political voice and bargaining power of the economic agents varied greatly both within, and between, countries, leading to the introduction of very different policies.

Key words: wine history, farm organization, vertical co-ordination, agricultural commodity chains, cooperatives, appellations

JEL Classification: L14, N51, Q13

[1] Earlier versions of this paper have been given at the 2008 Economic History Association Meeting, New Haven, and the Universities of Burgos and Murcia. I am grateful for comments and help from Alex Borg, Eva Fernandez, James Lapsley, José Miguel Martínez Carrión, John V.Nye, Alan Olmstead, Begoña Prieto Moreno and Paul Rhode. Financial help has been provided in Spain by SEJ2006-08188, Consolider 2006/04046/003 and CAMCP07 and at UCDavis, the Center for the Evolution of the Global Economy and Institute for Governmental Affairs, and in Spain

Wine production in Europe today is dominated by small family vineyards and cooperative wineries, while in the New World viticulture and viniculture is highly concentrated and vertically integrated. As a result, 70 per cent of the nation's wine in the United States and Australia is produced by the top five wine companies, 50 per cent in Argentina and Chile, compared to figures of only 10 per cent in countries such as France, Italy, or Spain.[2] This paper argues that these fundamental organizational differences have historical explanations that date from the turmoil in wine markets at the turn of the twentieth century. Technological change radically altered the nature of the industry before 1914, in particular creating economies of scale in wine making and allowing the commercial production of drinkable table wines in geographical regions where previously they had been considered too difficult. As technological change endangered existing rents, growers, wine-makers, and merchants lobbied governments to introduce laws and create new institutions that regulated markets in their favor. The political elite responded, supporting the creation of new institutions which helped preserve their own political power in the future. The political voice and bargaining power of the economic agents varied greatly both within, and between, countries, leading to the introduction of very different policies. First in France, and then in other European countries, the political influence of the hundreds of thousands of small growers forced their governments to support producer cooperatives that allowed growers to benefit from both the transaction cost-economizing effect of the family farm in grape production and the economies of scale found in wine-making, while regional appellations (later *appellation controlee*) created collective regional brands for small producers, thereby restricting the economic power of merchants and the tendency towards vertical integration. By contrast in the New World, there were few small family wine producers when the new wine making technologies appeared, and consequently their electoral influence limited. Instead, new investment in modern wineries was accompanied by the appearance of specialist grape producers, and a handful of merchants who created hierarchical organizations, integrating vertically and horizontally and investing heavily in advertising and brands to sell to consumers generally unaccustomed to wine in distant markets. By the turn of the twentieth century the California Wine Association controlled about 80 per cent of the region's wine sales and the importer Peter Burgoyne accounted for two thirds of Australian exports to the

[2] Anderson, Norman, and Wittwer (2004), Table 2.1

British. The creation of these hierarchical organizations reinforced in these markets the trend towards fortified dessert wines as oppose to table wines after 1900, which as late the 1960s accounted for at least half of national wine production.

This paper compares the response to technological change and the demands for state intervention and institutional innovation in a number of very different wine producing nations: France, Portugal and Spain in the Old World, and Algeria, Australia and the United States, three countries that only began commercial wine-production during the period in question. Section one argues that traditional grape and wine production favored small scale integrated production. From the mid nineteenth century producers had to adapt to three major exogenous events: the integration of national and international markets, the appearance of new vine diseases and production shortages that these provoked, and the major advances in the knowledge of fermentation and the development of wine making equipment that produced economies of scale and which allowed cheap table wines to be produced in hot climates. These changes encouraged an expansion of production in hot climates in the New World and a shift in the locus of production of cheap table wines from Europe's centre to the periphery. Thus while the four Midi departments and Algeria produced the equivalent of less than 15 per cent of France's domestic wine consumption in the 1820s, this figure had reached 50 per cent by 1910.[3] Other regions, such as La Mancha in Spain or Puglia in Italy experienced similar changes, although at later dates. By the turn of the twentieth century, a combination of higher yields and increase in adulteration flooded wine markets and led to a collapse in prices while improved wine-making technologies threaten the viability of thousands of small producers. The rest of the paper examines the repose to these two problems, and in particular the creation of cooperatives and regional appellations in parts of Europe, and vertical integration in California and Australia.

1. Traditional wine production and technological change prior to 1914.

Arthur Young noted in his travels through France in the late 1780s that the cultivation of the vine depended 'almost entirely on manual labour …demanding no other capital than the possession of the land and a pair of arms; no carts, no ploughs, no

[3] Algeria became an integral part of France after 1848, and Algièrs, Oran and Constantine were organised as French *départements*.

cattle'.[4] In traditional viticulture there were few economies of scale, and entry costs were low, as the vine could be grown competitively on small plots of land marginal to other crops, and a couple of hectares was considered sufficient to maintain a family.[5] But transaction costs in viticulture were higher than with most other forms of agriculture, because nature influenced considerably both the size and quality of the harvest. Output was sensitive to the quality and timing of labor inputs, and vines could be easily and permanently damaged if the pruning, plowing, and hoeing operations were badly carried out.[6] As a result, vines were rarely cultivated by workers other than their owners. Rental contracts were very rare as tenants might be been tempted to increase short-term output at the expense of reducing the productive life of the vine, while sharecropping suffered from the high costs associated with dividing the harvest.[7]

Wine was a major commodity in countries such as France, Portugal and Spain, and provided employment for hundreds of thousands if not millions of workers. In France, where statistical records are relatively good, there were reportedly 1.5 million growers around 1890, many of whom made their own wine. In the New World numbers were much smaller as the industry was still relatively unimportant at this time (Table 1), although once again most grapes and large amounts of wine were produced on small family farms. For example in California there was an estimated 5,000 growers, and George Hussman noted that 'the large majority of our wine growers .. are comparatively poor men'.[8] Likewise in Victoria (Australia), 2,382 growers cultivated 1,123 hectares of vines in 1900, with just 72 holdings being of more than 20 hectares.[9]

[4] Young (1794), 2, p.25. The version used here is the second chapter on 'vines' of the Bury St.Edmonds edition.
[5] Lachiver (1988), p.245.
[6] Galassi (1992) pp.78-83 and Hoffman (1984)
[7] Carmona and Simpson (2007). As Allen and Lueck (2002), p.116 note, when output is highly variable, 'the opportunities for the farmer to underreport (in effect, steal) the crop increase'.
[8] Roberts (1889) p.199, Pinney (1989) p.337 and Husmann (1888) p.iii.
[9] Victoria (1900), p.5.

Table 1

Leading wine producing countries before 1914

Wine production in millions of hectolitres				% of total in 1909/13
	1865-74	1885-94	1909-13	
France	55.4	31.9	46.4	31.4
Italy	23.6	31.9	46.0	31.2
Spain	17.1	21.9	14.9	10.1
Austria-Hungary	3.2	7.7	7.9	5.4
Portugal	2.1	4.3	4.8	3.3
Greece	0.2	1.8	3.2	2.2
Germany	2.5	2.5	1.8	1.2
Russia	3.3	3.5	1.4*	0.9*
Rumania	0.1	2.8	1.4	0.9
Bulgaria			0.8	0.5
Other European			0.9	0.6
European total			129.5	87.8
Algeria	0.2	3.1	7.9	5.4
Argentina	n.a.	n.a.	4.4	3.0
Chile	n.a.	n.a	2.0	1.4
USA	0.1	0.6	1.9	1.3
Russia (Asia)			0.9	0.6
South Africa	0.7	0.3	0.3	0.2
Tunisia			0.3	0.2
Australia	n.a	0.1	0.2	0.1
Other countries	5.1	15.7	0.2	0.1
Non-European producers			18.1	12.3
World	113.5	125.3	147.6	100.0

* Refers to European Russia

Sources: 1865-74 and 1885-94, Morilla (1994, p.303). 1909/13. Institut International de Agricole 1913 and 1914 (1915, pp.110-1), Mitchell (1995, p.240), Portugal, Lains (1998, p.965); USA: Simpson, forthcoming, chapter nine.

Europe's traditional wine producing regions enjoyed higher population densities and landowners accounted for a greater percentage of the rural population compared to other forms of agriculture. The historian Ernest Labrousse argued that the relative equality in landownership and the fact that most vineyards were cultivated by their owners, implied that there were less conflicts, while Marcel Lachiver notes that 'one finds more homogeneity in the wine-growing regions, less submission, more democratic spirit, more fraternity'.[10] The presence of large numbers of small property owners implied that major problems such as the widespread destruction caused by phylloxera, or the

[10] Labrousse (1944), p.596 and Lachiver (1988), p.246, cited in Brennan (1997), p.10

collapse of wine prices at the turn of the twentieth century, could be converted into important political issues of the day, both regionally and nationally.

Wine-making was based on simple technologies and took place in most growers' houses. The problem in 1850 was not so much an under investment in equipment as the lack of knowledge of why wines were good in some years, but undrinkable in others. According to Maynard Amerine, 'the roles of yeasts, bacteria, enzymes, sugar, and oxygen were largely unknown. White wines were usually oxidized in flavor and brown in color; most red wines were high in volatile acidity and often low in alcohol'. As a result, 'at least' 25 percent of the wine spoiled before fermentation was complete, and much of the wine was of a very poor quality.[11] The short life of most wines implied that any remaining in the cellar on eve of the harvest was thrown out to make way for the more valuable new wine.[12]

From the mid nineteenth century individual producers had to adapt to three major exogenous events: the integration of national and international markets, the appearance of new vine diseases and production shortages that these provoked, and the major advances in the knowledge of fermentation and the development of wine making equipment that produced economies of scale and which allowed cheap table wines to be produced in hot climates.

The demand constraints placed on the wine industry were significantly reduced during the second half of the nineteenth century by a combination of cheap transport, urbanization and rising incomes. The railways helped push Europe's wine frontier southwards and allowed growers in the Midi (France), La Mancha (Spain), and Puglia (Italy), regions long known to contemporaries as being especially suitable for the vine, to specialize for urban markets. Urban residents in France increased from less than ten per cent the population in 1800 to a quarter by 1890, with Paris by this date having over 2.5 million inhabitants.[13] Living standards improved significantly, with GDP per capita doubling in France, Italy and Spain between 1850 and 1913, and real wages of unskilled urban workers increasing by between a half and two-thirds.[14] In France wine consumption rose from 76 liters per capita in 1850/4 to 108 liters in 1890/4, and peaked

[11] Adams (1973) cited in Pinney (1989), p.354 and Amerine and Singleton (1976 ed.), p.21.
[12] Richard Ford noted for Valdepeñas (La Mancha) in the 1840s that 'the red blood of this "valley of stones" issues with such abundance, that quantities of old wine are often thrown away, for the want of skins, jars, and casks into which to place the new'. Ford (1848: 1970), p.161.
[13] Urban centres as 10,000+ inhabitants. De Vries (1984), pp.45-6 and Pinchemel (1987) pp.146-7.
[14] Maddison (1995, pp.104-8), Williamson (1995), pp.164-6, and Rosés and Sánchez-Alonso (2004), p.407.

at 168 liters in 1900/4.[15] The quantity consumed by producers and their families (and therefore exempt from taxes) grew from an annual 5 to 9 million hectoliters between 1850/4 and 1900/4, while the increase in off-farm consumption was from 18 to 42 million hectoliters.[16] There were smaller, but significant increases in per capita consumption in other producer countries such as Italy, Portugal and Spain.

This growth in consumption was all the more impressive given the fact that the phylloxera aphid devastated large areas of Europe's vineyards. Phylloxera, first noticed in 1863, arrived on vines brought from the United States and destroyed the root system of Europe's *Vitis vinifera* species. In time it killed most of the world's grape producing vines, with the only long-term solution being to graft European varieties on phylloxera immune American rootstock.[17] In France output, which had averaged 57.4 million hectoliters in 1863/75, fell to 31.7 million in 1879/92, before recovering to 52.5 million once more in 1899/1913. Production shortages caused by phylloxera led to higher wine prices and these in turn encouraged growers elsewhere to plant vines and increase output. In Spain, for example, wine exports rose tenfold between the early 1860s and late 1880s, when they were equivalent to about a third of national production.

The low entry costs found in traditional viticulture were changed by phylloxera in four distinct areas. First, the uprooting of dead vines and the replanting with new disease resistant ones implied heavy capital costs, especially as special ploughs had to be used to prepare the land for the best results. Second, the vineyards were no longer self-sufficient, as vines could not now be replaced by layering. Instead farmers had to purchase from nurseries the American rootstock that was both suitable for the conditions of their own vineyard and compatible with the chosen European scions. Some combinations performed better than others, and this information was not easily available to growers. Third, the new vines were more delicate and more susceptible to fungus diseases, requiring greater expenditure on sulphur for powdery mildew, or 'Bordeaux mixture' (copper salts) for downy mildew. Finally the economic life of the vines was considerably less than the traditional ones, between twenty and thirty years. Against these disadvantages, the new vines tended to come into production earlier and in France for example, wine yields increased from 22 hectoliters per hectare in the

[15] Nourrisson (1990), p.321.
[16] Calculated from Degrully (1910) pp.320-1.
[17] Injecting the vine's the roots with liquid carbon bisulphide, spraying the vines with sulphocarbonate, or flooding the vineyard during the winter also temporarily halted phylloxera, but was too expensive as a solution for most growers.

1870s, to 37 hectoliters in the late 1920s, although the appearance of new hybrid varieties, which combined resistance to disease with the need for lower labor inputs could, under optimal conditions, produce in excess of 100 or even 200 hectoliters per hectare, although of very mediocre wine.

Scientific research in the wineries was as spectacular as in the vineyards. Pasteur provided a scientific background on the causes of fermentation and how to keep wines in conditions so that they would not ruin, although it was only at the very end of the period that technology permitted ordinary table wines to be pasteurized economically. The major breakthrough of the period was the ability to control the temperature during wine-making. In hot climates fermentation had often come to a premature end, and the sugar that was left made the wines unstable and they ruined quickly. In 1887 Paul Brame successfully devised a system whereby the temperature of the must was reduced by pumping it through tubes which were immersed in water, although it was only after the 'deplorable vinification' of 1893 that the system became widely adapted in Algeria.[18] By the turn of the century it was noted that 'there is probably not a single large cellar in Algeria, Oran, or Constantine which does not possess one or more of these machines, and by their use the production of a sound, completely fermented wine has been possible in all cases'.[19]

Montpellier became the world's centre for these new wine making technologies but information was exchanged internationally by such specialists as Frederic Bioletti (University of California, Davis), Arthur Perkins (Roseworthy, South Australia**)** or Raymond Dubois (Rutherglen, Victoria). The last decade of the nineteenth century and the first of the twentieth saw major investment in new large scale wineries in hot climates incorporating the latest technologies. In Australia for example, B.W.Bagenal, a student for three years at Montpellier and representative of the London importers W.W.Pownall in Adelaide, noted that he had personally visited seven of the best ten French and Algerian vineyards cited in a recent book, and therefore 'he had confidence

[18] Isnard (1954) pp.189-90. For similar advances in Australia, see Simpson (2009b).

[19] Bioletti (1905), p.39. This author describes two differently types of machines : *attemperators*, which pumped water or other cooling liquids through a tube in vat, and *refrigerators*, which consisted of a spiral tube outside the vat, and through which the wine was pumped, and which was cooled by a cold liquid on the outside. A second method – the pumping of sulphur anhydride through the must –also became widely used in the 1890s. The gas arrested the reproduction of the wine yeast and rendered it inactive for a certain time, but without killing it. By heavy sulphuring, growers could both sterilise the must, and slow the rate of fermentation so that it took place over two or three weeks and thereby reduce considerably the heat produced. Cultivated wine yeasts were now used. Growers often used a combination of both refrigeration and sulphuring to control fermentation.

in saying that there was no place he knew of where the industry was better carried on than at Seppeltsfield'.[20]

By 1900, the new wine-making techniques included refrigerators, continuous presses, aero-crushing turbines, sterilizers, and pasteurizers, and these helped create economies of scale in five important areas. First, considerable skills were required in wine-making if growers were going to be able to produce a dry table wine which would keep. By the 1890s the leading wineries were controlling the temperature of the must during fermentation, correcting its acidity and using cultivated yeasts. Second, new wine-making technologies and cellar designs helped cut labor costs, an important consideration in a high wage economy such found in the New World. Third, the quantity of wine produced per ton of grapes increased. Fourth, merchants demanded large quantities of wines of a uniform style which could be repeated each year, which was impossible for small producers to achieve. Finally, some of the large wineries diversified into distilling and the production of brandy and fortified wines, where the economies of scale were even greater.[21] In California, fortified wines increased from 17 per cent of production in 1891/5 to 50 per cent in 1909/13. After Prohibition it was even higher, reaching 81 per cent in 1935, and as late as the mid 1960s half the wines in California and Australia were fortified dessert wines.[22]

The large modern wineries required considerable quantities of grapes if they were to be worked at full capacity, and these could be produced either by the wine maker integrating backwards into grape production, or brought from specialist growers. Phylloxera helped growers reduce the monitoring problems associated with wage labor, as growers could now planted so that ploughs and horse-drawn sprays could move between the vines with ease. Work skills were reduced by replacing pruning knives with secateurs from the late nineteenth century. Vines were increasingly grown on wire trellises in long straight lines to facilitate the use of ploughs between the lines.[23] Greater control over the speed and the quality of operations such as pruning, spraying, cultivation and harvesting was achieved as supervisors could walk between the rows to

[20] Australian Vigneron), March 1898, p.188. The book referred to most probably was Ferrouillat and Charvet (1896)
[21] Further evidence of these economies of scale can be found in Simpson (forthcoming), chapter two.
[22] California. State Board of Agriculture (1915), p.139 and Sullivan (1998), p.119. For Australia, Simon (1966), p.xi. Simon also notes that 'a slightly greater tonnage' of grapes was used in the making of brandy and other spirits than in the making of wine.
[23] Genieys (1905), p.38, Gide (1901), pp.218-9 ; and for monitoring costs, Carmona and Simpson (1999a).

check an individual's work. As Guyot, perhaps the leading writer on viticulture in the mid-nineteenth century noted:

> A simple glance along the line of vines, permits the owner to spot the skill or the negligence of his vinedressers, just as the foreman can control with the same ease the quantity and quality of work of each of his workers. [24]

The effects of vine disease and the need to replant after phylloxera created a distinction in areas of cheap table wines between intensive, high-yielding 'capitalist' viticulture and low-yielding, less intensive 'peasant farm'.[25] The ideal size vineyard according to local growers in the Midi at the turn of the twentieth century was between 60 and 80 hectares, with economies of scale appearing after 30 hectares, but diseconomies on those estates of over 90 or 100 hectares.[26] However, the appearance of large estates in the Midi reinforced the presence of the small producers as it encouraged cooperation among growers. Thus large owners were willing to let skilled vinedressers work a six hour day, finishing at two or three o'clock each afternoon so that they could work their own vine and phylloxera encouraged large owners to lend equipment, money, the use of their wineries, technical information and often the vines themselves, in exchange for labor service.[27] The estates needed to be compact, as the potential economies of scale were quickly lost if the vineyard was fragmented into a number of small plots, a feature of many vineyards in Europe's traditional wine regions. In addition in viticulture problems of moral hazard (in effort and asset use) and timing costs (growers were unspecialized 'jacks of all trades'), helped the small, family grape producer to remain competitive in most markets throughout the twentieth century.[28] In the New World the greater use of plows and other forms of labor saving equipment simply increased the size of the family vineyard, rather than encourage backward integration into grapes by wine makers.

The increasing technical and capital requirements associated with wine-making led to the industry shifting from one that had been small scale, multi-unit and geographically dispersed, to one where there were economies of scale and concentration. While the small family farmer enjoyed some advantages over large estates in grape production, the economies of scale found in wine-making threatened the

[24] Guyot (1861, p.19).
[25] Carmona and Simpson (1999a) p.307.
[26] Cited in Augé-Laribé (1907), pp.119-22.
[27] Smith (1975), p.365 and Frader (1991), pp.36 and 69.
[28] Carmona and Simpson (1999a) and Allen and Lueck (2002), p.143.

viability of the small producer, especially during the sharp global drop in wine prices at the turn of the twentieth century. There was also a radical change in the financing of the sector. Traditional viticulture had been financed out of saving, in particular that of growers clearing and planting a small plot of vines at times when there was little demand for their labor. The high prices of the 1870s and 1880s encouraged a massive inflow of commercial capital, which made the large producers very vulnerable to the cyclical downturn in the early 1900s.[29]

2. Wine and adulteration.

While fraud had always been present in food and beverage markets, it changed significantly over the second half of the nineteenth century because of the growing physical separation between producers and consumers, and the development of new preservatives that allowed manufacturers to mask food deterioration and lower costs, often making food adulteration imperceptible to consumers. As Marc Law has recently noted, 'technological developments in food manufacturing and processing during the late 1880s gave rise to new and cheaper products, such as oleomargarine, glucose and dressed beef, that threatened to undermine the market power of more traditional food products'.[30] In particular, science increased the complexity of products, 'creating opportunities for cost-saving deception by some firms through adulteration of their products in ways that consumers could not easily perceive'. [31] By the late nineteenth century, problems of wine adulteration and poor quality information for consumers created a 'lemons' problem with sherry and claret, leading to the collapse in the sales of genuine fine wines in the important British market.[32] In 1890 wines made from sugar and raisins officially accounted for a sixth of French wine consumption, and in Spain artificial wines manufactured from imported industrial alcohol accounted for perhaps a quarter of the domestic markets.[33] Problems associated with classifying and measuring product quality presented significant opportunities for cheating and adulterating wines,

[29] Isnard (1954), p.133 and Postel-Vinay (1989)
[30] Law (2003) p.1103. In the first edition (1883) of his *Traité general des vins et de leurs falsifications*, Emile Viard wrote that it was often difficult to prove scientifically cases of fraud, while in the third edition (1891) he noted that both the 'number of products used to falsify wines' and the 'methods of investigation' to combat them had increased significantly in the short period between volumes. Cited in Coello Martín (2008), p.69.
[31] Law and Libecap (2004), p.3.
[32] Simpson (2004) and Simpson (forthcoming). *Ridley's* noted that 'people drink so called "Claret", composed of one-third of the genuine article and two-thirds of the British imposition, and condemn, not the latter, but Claret'.
[33] Simpson (2005) and Antúnez (1887), p.16.

although the different economic agents, namely the growers, wine-makers, merchants, retailers, governments, and even consumers, often disagreed on what was acceptable, and what was not. Many consumers were happy with some forms of adulteration. In Paris and elsewhere, wines were fortified before entering the city to minimize taxation, and then watered down and blended by retailers to suit customers' taste and keep prices low. Growers blamed wholesalers and retailers for adulterating their wines, but they themselves often used production methods which were questioned by experts. The addition of sugar and water to the grape pomace (*marc*) and adding water to obtain 'second' and 'third' wines was common around the turn of the century, even in southern France. By contrast in hot climates, the grapes lack of acidity was traditionally overcome by adding calcium sulphate (plaster of Paris), although in France at least, tartaric acid was preferred by 1900.[34]

The difficulties for consumers to identify adulterated products, together with the concern in the scientific and medical communities of their health consequences, led to the introduction of government legislation in many countries, In France, the 1905 law provided the basis for controlling fraud, including both the composition of the product and the labeling of the wine's origin.[35] However, it needed the massive protests in the Midi in 1907 to force the government to allow a grower's organization (the *Confédération générale des vignerons du Midi*) legal powers to search out and prosecute illegal wine-making activities and the sale of adulterated wines. While this restored profitability to southern France's and Algeria's low quality wine producers, it did little to help growers in regions such as Bordeaux or Champagne, who complained bitterly about merchants selling inferior outside wines as from there, and who now demanded appellations to allow only local wines to use of the regional 'Bordeaux' or 'Champagne' brands (section 3). Both California and New York, the two major wine producing states in the United States, adopted pure wine laws as early as 1887, but while in California the use of sugar in wine-making was prohibited, in New York it was allowed because the harsher climate made maturing grapes much harder. Both states then made considerable efforts to persuade Congress to adopt their respective definitions before Prohibition.[36] The Pure Food and Drug Act of 1906 ended the worst fraudulent and hazardous adulterations, but were less successful against false labelling.

[34] The French law of 1891 made it illegal to use more than two grams of calcium sulphate per litre. Roos (1900), p.148.
[35] For the 1905 law, see especially Stanziani (2003, (2004).
[36] Seff and F.Cooney (1984), pp.417-8.

This was not surprising, as over much of the nineteenth century growers and wine-makers everywhere had attempted to improve wine quality by copying production processes used to make fine wines such as sherry, port, champagne, etc., and then used these names to create recognizable brands in their domestic markets, as well as the important British market.[37] Consequently in California, while the *Pacific Wine and Spirits Review* (PWSR) criticized the false wines produced in Ohio's 'brick vineyards', it noted happily that 'more than 2,000,000 bottles of genuine champagne are now annually produced in the United States'.[38]

By the turn of the century, the post-phylloxera recovery in French wine output and widespread production of artificial wines sent prices crashing everywhere. Growers in the Midi sold their wines at a loss in five years out of seven between 1900 and 1906, and over half a million people demonstrated on the streets in Montpellier in 1907 against the low prices and sales of adulterated wines.[39] Policymakers responded to the industry's demands to restrict foreign competition through tariffs, so that while scientific knowledge and technology moved increasingly across frontiers from the late nineteenth century, national wine markets by contrast became more closed.[40] By contrast, other forms of state intervention were more controversial.

3. Regional and controlled appellations

Wine production in the nineteenth century was very competitive, globally decentralized, and with few barriers to entry. In addition quality varied significantly, not just between one plot of vines and another but also from one harvest to the next. Economic agents along the different commodity chains found it very difficult to supply a product of consistent quality, and the significant problems of asymmetrical information between buyer and seller made it easy to cheat and unprofitable to brand wines on a major scale. Most wine was sold from the barrel, and it was the reputation of café and bar owners that attracted clientele. Therefore while an increasing number of food and beverage commodity chains in the British and US markets became buyer-driven during this period, with a few very large companies dominating specific market sectors with their brands (Heinz, Quaker Oats, Cadbury, etc.), this was generally not the

[37] By 1913, 21 per cent of all California's wine was officially classified as port and 14 per cent as sherry. Calculated from the California. State Board of Agriculture (1915), p.140.
[38] *Pacific Wine & Spirits Review*) May, 1907, p.39.
[39] Warner (1960), p.18.
[40] Ayuda (2002)

case with wine.[41] Successful producer-driven chains were found only with a very few highly specialized wines such as Moët & Chandon, where barriers to entry existed because of the limited supply of top-quality land and high production costs associated with vintage champagne.

The integration of national markets in producer countries increased the negotiating powers of merchants, allowing them to purchase wines cheaply from over much wider areas for blending, with smaller growers in particular finding it difficult to sell in years of low prices. By contrast growers in European countries saw an increase in their political voice which they used to try and wrest some of the market power from the merchants. Local growers had long claimed that their better quality wines such as 'claret', 'port', 'champagne' or 'sherry' constituted collective trademarks for a wine from a specific region, and now demanded that they should be protected by law by creating regional appellations. These would restrict the supply of grapes for a particular wine to a designated area, and consequently confronted local growers with others located outside the designated areas. They were also opposed by merchants who claimed that a wine's reputation was created by them rather than the growers, and that they needed the freedom to purchase outside wines for blending to compensate for the vagaries in the local harvest and to sell at competitive prices. However, while growers objected to those from outside their region appropriating the local name, they faced formidable organization problems to create regional brands. The 60,000 or so growers in Bordeaux in 1900, for example, might agree not to make wines from raisins or sell cheap Midi wines as claret, but it remained in the interest of each that others should make the necessary sacrifices to maintain the region's collective reputation, rather than themselves.[42] Only when a grower believed that a system could adequately identify and punish cheats, were they likely to respect the rules themselves. The problem of defining exactly what the essential characteristics of claret or champagne were also created conflicts. If claret came from within certain boundaries in the Gironde, did that mean that all wines produced within the geographical area could then be considered as 'claret', regardless of their quality? And, how were wines to be classified that had been grown in one village, and then crushed and fermented into wine in another? Could champagne be made with grapes grown in the Marne, but then crushed in Germany? Or the grapes grown in the Midi, and the wine mixed with that from Épernay to make

[41] For the problems of selling wines in the British market, Simpson (2004).
[42] Olson (1965) p.10.

champagne? While local producers argued that regional appellations were essential to improve local wine quality and increase information for consumers, their opponents claimed they served only to create geographical monopolies and shift rents to the local producer. As one noted, 'with this system France will no longer be a country of free trade, such as was achieved with the Revolution, but a cluster of provincial monopolies protected by excise officers. We shall return slowly to the Middle Ages'.[43]

In France, regional appellations were considered as largely irrelevant by the leading fine wine producers as individual brand names such as Château Margaux or Moët & Chandon were known to potential consumers. Demand for an appellation came instead from the thousands of small growers in regions such as Bordeaux and Champagne who were forced to compete with other wines that were being mislabeled as coming for these regions.[44] In particular, the Midi's growers had benefited most from the control in the sale of artificial wines and greater market integration (reduced rail freight charges, lower direct and indirect taxes), because their production costs of 'natural' wines were considerably lower there than elsewhere in France. The sharply lower wine prices from around the turn of the century threatened producers who had built their reputation on quality, as their vineyards had lower yields and higher production costs. Local growers used their political strength to pass the 1905 law which provided the legal framework to establish a regional appellation. There was considerable opposition, but while in Champagne the question of geographical boundaries led to rioting and the intervention of the army in 1911, in Bordeaux growers agreed to include the whole department within the appellation.[45]

As some merchants predicted, the major weakness of appellations was that although they guaranteed a wine's origin, they could not control its quality. In particular, if a regional appellation was successful in raising local wine prices, this would encourage growers to increase output by planting on less suitable soils and use high-yielding vines – a classic free-rider problem. These problems started to be addressed in the early 1930s with a tightening of restrictions on the type of grape varieties that growers could use. As a result, if in 1934 there was 15.7 million hectoliters of wine produced by regional appellations (a fifth of France's total

[43] Cited in Vitu (1912), pp. 55-56. The process of establishing an effective regional appellation had two stages: first, the legal creation and acceptance at a national level, and then its international recognition. The success of European growers in achieving the necessary support to create effective local appellations varied considerably. This paper considers only the first stage.
[44] The situation was very different in the two regions. Simpson (forthcoming), chapters seven and eight.
[45] Simpson (2005)

production), by 1944 it had fallen to 5.7 million (or an eighth).[46] The *appellations controlees* became operational after the Second World War, and further increased restrictions, controlling viticulture practices and the making and maturing of wines.[47] In effect, growers were forced to improve quality if they were to benefit from belonging to the *appellation controlee*, which in turn implied the uprooting of high yielding grape varieties and reducing output, a move which allowed the state to reduce expenditure to eliminate surplus stocks. As a result, the quantity of AOC wines increased from about a tenth of total production in the early 1950s to a third in the late 1980s, an important shift as consumers moved 'up market', while drinking less.

While thousands of small growers in France were able to use their political influence to achieve legislation that benefitted their interests, the situation was less favorable in countries with 'elite democracies'. In Spain, for example, the demands from the mid nineteenth century by small sherry growers in Jerez for a regional appellation and the creation of local bank were routinely dismissed by the authorities as they went against the interests of a small number of powerful shipping families. Even when an appellation was fully approved in 1933, the shippers were still able to buy outside wines when harvests were poor or prices high.[48]

By contrast, in Porto, the vine-growers found a considerably more sympathetic state, despite a government that was as unrepresentative as that in Madrid. The world's first regional appellation, the *Companhia Geral da Agricultura e Vinhos do Alto Douro* (Douro Wine Company), was established in 1756 and survived until 1833, although it was briefly reinstated again between 1843 and 1853. No wine could be exported through Porto that had not been produced in the designated region, and the Douro Wine Company regulated the production of wine and brandy, 'approving, classifying, and pricing all wine before it was sold to exporters.'[49] The Douro Wine Company also bought wines to sell to merchants and itself traded in international markets. As Duguid and Silva Lopes have noted, 'the *Companhia* .. defies all assumptions about disinterested regulators.'[50] The Douro Wine Company was heavily criticized from the first moment in the British press, which was hardly surprising as it was seen by British

[46] Loubère (1990), pp.122-3 and Lachiver (1988), p.583.
[47] In French, *appellation contrôlée,* short for *appellation d'origine controlee.*
[48] The 1935 law provided a minimum length for maturing wine, a minimum alcoholic strength, controlled grape yields, fixed minimum export prices, and restricted export to 60 per cent of a shipper's stock in a single year. As elsewhere, there have been frequent modifications of the clauses. Fernández García (2008), pp.195-6.
[49] Duguid and Lopes (1999), p.87.
[50] Duguid and Lopes (1999), p.88.

merchants as a means to create rents and enrich the Portuguese at their expense. The port shippers, unlike those in Jerez, retained their British nationality, which placed them at a distinct disadvantage when negotiating with the Portuguese state, and a new regional appellation was introduced in the 1900s. By contrast the merchants were successful in their negotiations with the British government, and the Anglo-Portuguese Commercial Treaty Acts of 1914 and 1916 restricted the use of the word 'port' to wines that were produced in Portugal, a privilege that the sherry shippers only obtained after Spain's accession to the European Union.

Table 2. Negotiating strength of growers and shippers in domestic markets and the UK in the early twentieth century

		Domestic market	United Kingdom
Port	Growers	Strong	Weak
	Shippers	Weak	Strong
Sherry	Growers	Weak	Weak
	Shippers	Strong	Weak
Champagne	Growers	Strong	Weak
	Shippers	Weak	Strong
Claret	Growers	Strong	Weak
	Shippers	Weak	Weak

Acemoglu, Johnson and Robinson have argued that economic institutions are endogenous, and determined by political institutions and the distribution of resources in society, with conflicts stemming not from 'differences in beliefs, ideology or historical accidents, but from the impact of economic institutions on distribution'. The equilibrium structure is determined by who has the political power, and this in turn on the allocation of de jure political power through the structure of political institutions (e.g. democracy, dictatorship, etc.), and the ability of pressure groups to solve the collective action problems and mobilize (de facto political power).[51] Table 2 summarizes the differences in negotiating strength of growers and shippers in four major fine wine producing areas in their domestic markets, and in the crucial British export market. With port, champagne and claret, it was the growers, rather than the shippers that were best placed to influence government policy, and in particular, create regional appellations. By contrast, the strong private champagne brands, and the collective strength of the Porto shippers, allowed these two drinks a relatively privileged position in the important British market in the early twentieth century. By contrast, both sherry and claret suffered competition from others usurping their regional brands.

Yet in Europe, especially outside France, the amount of wine produced by regional appellations was relatively small until recently. Some growers did attempt to produce fine wines by copying the techniques used by the leading producers in Bordeaux or Champagne, but even the best in Napa, La Rioja or the Yarra Valley found it difficult to produce a consistently good wine. However, the lack of interest in regional appellations had less to do with production technologies than it did with marketing problems and the nature of consumer demand. Most consumers were happy to purchase their wines based on two variables alone: alcoholic content and price.[52]

From the early 1950s there was a slow expansion in the number of controlled appellations in Europe, which then accelerated after 1970. In France, the quantity of wine increased from 15 per cent of national output in 1970 to 44 per cent by the mid 1980s.[53] Although the growth can be explained by better production methods and the demand by consumers for better wines, the interest of the state was now crucial. As European governments responded to growers' demands, appellations were seen as a means of controlling output by limiting the grape varieties that could be used and establish maximum yields. By demanding better quality wines, the state was effectively also reducing output and hence the subsidies it had to pay.

---

[51] Acemoglu, Johnson, and Robinson (2005), p.439 and 451.
[52] Genieys (1905), p.38. Wines from the Midi were sold by alcoholic strength and colour. Augé-Laribé (1907), p.192.
[53] Loubère (1990) p.125. This latter figure includes AOC, VCC (*Vin de pays*) and VDQS (*Vin Délimité de Qualité Supérieur*).

4. Cooperatives

The successful prohibition of cheap, artificial wines eliminated for low cost producers their main market competitors. However, it did little to resolve the difficulties that the small family producers faced because of their inability to capture economies of scale in wine making and their weak market power. Without the scientific knowledge and capital investment in cellars and equipment, wine quality was much poorer on the small farms than the large vineyards. In addition, lower transport costs favored high-volume distribution, and transaction costs increased for wholesale merchants if they had to buy wines from large numbers of growers scattered over a wide territory. Large producers therefore sold their wine at higher prices. For example in France the huge *Compagnie des Salins du Midi* (C.S.M.), with facilities to produce 100 thousand hectoliters, was paid an average of 19.25 francs per hectoliter of wine in the period 1893-1913, against a regional average of 16.00 francs. By contrast, a small producer of just 400 hectoliters (Gélly) received 27 per cent less than the C.S.M. during the period 1893-1906. This difference was even greater in those years with the lowest prices, with Gélly being paid only 4.8 francs in 1904, against 11.5 francs received by the C.S.M.[54]

Lack of storage space was another problem facing some growers (the *non-logés*). Sometimes the area planted after phylloxera did not coincide with the old area of vines, and growers failed to build cellars, preferring to sell their wines directly from the fermenting vat. In other cases, they lacked the necessary capital to increase the capacity of their wineries to cope with the larger yields from the new vines, or failed to maintain capital investment in their cellars when they were producing little or no wine during phylloxera. In the village of Marsillargues (Hérault) in the Midi for example, growers had storage space for only 85 per cent of the village production (300,000 hectoliters); in Saint-Laurent d'Aigouzes (Gard) it was 75 per cent (of 160,000 hectoliters), and in Bompas (Pyrénées-Orientales), only 47 of the village's 227 wine-growers had cellar space to store wines over the winter.[55] Growers in Marsillargues in 1897 sold 55 per cent of their harvest in September, 14 per cent in October, and just 31 per cent over the following ten months.[56]

As a result, although many family grape producers could remained competitive by working longer hours, they found it increasing difficult to survive in the making and

[54] Pech (1975) p.158.
[55] Mandeville (1914), p.43.
[56] Cot (1900) cited in Gervais (1914), p.50.

maturing of their wines. A number of influential French writers from around 1900, including Charles Gide, Michel Augé-Laribé and Adrien Berget, saw wine co-operatives as a solution. Cooperatives promised to produce better quality wines at a lower cost than those produced in the small 'peasant' cellars, and provide cheap storage space for wines to mature and be sold at higher prices later in the year. They also offered the possibility for processing the wine lees - the remains of the grapes after they had been crushed - to make alcohol and tartaric acid.[57]

The creation of agricultural cooperatives depended both on the initial capital costs and the transaction costs associated with their internal governance.[58] The first attempt at establishing a wine cooperative in France took place in Champagne in 1893, and despite the low wine prices between 1900 and 1907, there were still only 13 in the whole of France in 1908.[59] Three problems in particular had to be resolved: lack of capital; the absence of experienced management, and the difficulties associated with measuring grape and wine quality. The first was partly solved by the law of the 29th December 1906 (together with the decrees of 30th May and 26th August, 1907), which allowed wine cooperatives access to long term credit at the almost uniform rate of 2 per cent interest over 25 years.[60] Capital was provided by the state, but lent through regional credit banks, which were responsible for the loans. Local banks did the monitoring and transaction costs were reduced because cooperatives were required to establish a specific legal structure to receive the money. As a result, the 50 cooperatives in southern France between 1907 and 1914 obtained loans covering an average of 47 per cent of their capital costs, and the state gave subsidies of 815 thousand francs, an additional 14 per cent.[61]

Finance was not the only obstacle. In some cases the potential economies of scale from selling wines were not exploited. For example, one of the largest cooperative

[57] Mandeville (1914), p.82.
[58] Valentinov (2007)
[59] Clique (1931), p.14. In Italy, a short-lived *cantina sociale* was established at Bagno a Ripoli, near Florence in 1888, and by 1910 there were reportedly 'slightly in excess of 150', and a further 40 cooperative distilleries were also active. International Institute of Agriculture (1915), vol.2, p.152.
[60] Caupert (1921), p.111, Gervais (1914), Misaël (1914) and Mandeville (1914), pp.2 and 11.
[61] Mandeville (1914), p.139. This author noted that some co-operatives were not finished and therefore expenditure would rise, reducing in turn these figures slightly. The members of the Maraussan (Hérault) co-operative of the *vignerons libres*, for example, constructed and equipped a modern co-operative winery, with an initial capacity of 15,000 hectoliters, at a cost of 175 thousand francs, of which the Ministry of Agriculture contributed 30 thousand francs, the local regional bank (under the 1906 Law) provided a long-term loan of 109 thousand francs, and a further 30 thousand francs was raised from consumer co-operatives in Paris. The subscription of the 120 members was just 25 francs each. Gide (1926), pp.129-31.

in terms of cellar capacity in southern France in 1914 was that of Marsillargúes (60,000 hectoliters), but it was the individual growers not the cooperative that sold the wine, as a poor sale was considered likely to discredit the cooperative's management.[62] Another problem was that while most producers planted a number of different grape varieties to reduce risk, cooperatives could only measure accurately (and therefore pay) the grape's weight and sugar content. The inevitable result was members sold privately their best grapes, leaving for the cooperative the least desirable one.[63] The initial high density of co-operatives in the Languedoc can therefore be partly explained by the region's limited number of grape varieties, with the aramon (red) and clairette (white) predominating.[64]

The number of wine co-operatives in France jumped from 13 to 79 between 1908 and 1913, of which 50 were found in the south, and by the early 1930s the national figure was 630, significantly more than in either Italy or Spain.[65] From the early 1950s the numbers increased everywhere, so that by 1970 cooperatives accounted for about half wine-production in France and Spain.[66] Cooperatives allowed growers to dedicate more of their capital and labor to grape-growing, but they were now seen by the state as a useful instrument for controlling and regulating markets, and in particular by obliging cooperatives to hold stocks off the market or distil surplus wine.[67]

5. Vertical integration and the New World

Cooperatives helped growers integrate vertically by absorbing the functions of wine-makers and some of those of the merchants, but they could not influence prices because of their small size relative to the national market. Hoffman and Libecap have argued that cooperatives can raise prices only if the product is relatively homogenous, stocks difficult to accumulate and a significant number of individual growers will agree to output cuts which can be easily monitored.[68] None of these held true for wine. Instead wine merchants in both California and Australia enjoyed some success in controlling markets through horizontal consolidation and vertical integration on a massive scale. This section explains how this was achieved, and also why similar attempts failed in Europe.

[62] Mandeville (1914), pp.111-12.
[63] For Italy, see Berget (1925) cited in Clique (1931), p.241.
[64] Gide (1927), pp.92-3. For other factors explaining the regional distribution of co-operatives, see Simpson (2000)
[65] Simpson (2000), Table 5. In Algeria the figure was 17 per cent.
[66] The figure reached 52% in France in 1971 and 50% in Spain in 1969.
[67] Warner (1960) and Fernández García (2008)
[68] Hoffman Elizabeth and Gary D. Libecap (1991), pp. 397-411.

One major difference between these two countries and Europe was the large distances between the areas of production and markets. In Australia the high internal tariffs before Federation in 1901 made commercial producers look to the British market some 20,000 kilometers away, even though freight costs were approximately three times greater than those facing French exporters.[69] In addition, the long sea voyage and the extremes in temperature resulted in all wines, especially the young ones and those 'that have not been thoroughly well made', to undergo a 'very considerable and detrimental change'.[70] Imported wines required several months rest on arrival, and faulty or young wines were often permanently ruined. These quality changes caused major problems for the trade. One prominent London West End merchant reportedly imported sixty hogsheads of South Australian wine because of its growing popularity, but it turned out so 'ill-fermented' that they resolved never to import any more direct from Australia.[71] By contrast, Australian producers complained that when they exported good wines, British merchants would claim that they arrived in poor condition and were only willing to pay low prices. For this particular late nineteenth century market to work, trusted agents were required at both ends of the chain: in Australia to check that only acceptable wines were shipped; and in London to determine the appropriate remedies to correct the wines after the journey. Distances were between the Californian wine producers and major East Coast markets were shorter, but they were still considerable given the volatile nature of most wines, and the ease that they could deteriorate. An additional problem was that most consumers in these two countries (together with the United Kingdom) were unaccustomed to drinking wines. Unlike Europe, where most consumers drank either directly from the family vineyard, or from a local tavern or café whose owner was responsible for blending their wines and creating reputation, the New World wine merchant had to attract new recruits to a drink whose quality he found difficulty in controlling.

Another factor was that the 1.5 million or so growers in France found it considerably easier to persuade politicians to introduce new economic institutions to protected their interests than the 5,000 growers in California, or 3,000 in Victoria. The new wine making equipment required large quantities of capital and wine makers would have no return if there were no grapes because producers had abandoned production.

[69] Australian Vigneron), July 1892, p.48.
[70] Australian Vigneron), July 1892, p.47.
[71] Australian Vigneron), October 2 1893, p.114.

Vineyards were asset specific, implying that they had little value to their owners other than to produce grapes. But growers could sell these grapes for the table, or dry them to make raisins, rather than accept low prices from wine makers. More importantly Australia and California were both labor scarce economies, and persistently low grape prices would risk labor leaving to work in urban areas.[72] While both California and South Australia, the increasing economies of scale being found in the new wine making technologies eroded the competitive position of the small wine maker, it also saw the appearance of specialist growers. The *Pacific Wine and Spirits Review* noted that by 1900 most growers sold their grapes to wine-makers, 'except to a limited extent in some of the older districts', whereas previously nearly every vineyard had had its own fermenting house and storage cellar, and as early as 1882 Thomas Hardy, a leading producer in South Australia had noted that 'the manufacture of wine is now almost wholly gone into the hands of those who make a business of it, and do not follow it merely as a secondary pursuit'.[73] The growth in concentration in wine making can be seen in Table 3, with the largest ten wineries accounting for 14 per cent of South Australia's production in 1868 and 67 per cent in 1903.

A final factor was the question of distilling, and in particular the use of wine alcohol in the production of dessert wines such as port and sherry. In both countries, the state regulated distilling, which benefited large scale operations. In California, wine makers were allowed to fortify their wines with domestic grape brandy and avoid the $1.10 a gallon tax on brandy. This made fortified wines the cheapest form of alcohol on the market, and allowed producers to profitably distil their poorer wines and produce sweet fortified ones.[74] It also helped reduce the technical problems associated with making wines in a hot climate, and therefore was especially attractive to producers in the Central Valley. Economies of scale were considerably greater in the production of dessert wines and distilling, encouraging new investment by the CWA in production facilities. After 1891 there was a rapid growth in the production of dessert wines, and by 1913 they accounted for 45 per cent of all California's production, of which 46 per cent was classified as port, 31 per cent as sherry, 12 per cent as muscatel, and nine per cent

---

[72] Entry barriers to viticulture were less in the New World than in Europe, and a wider selection of employment alternatives existed should they decide to exit the industry. See Castella (1886), and Simpson (forthcoming)
[73] *Pacific Wine & Spirits Review*)(December, 1906), p.43 and Aeuckens, 1988, p.148.
[74] Seff and Cooney, in Muscatine, Amerine, and Thompson (1984), p.418.

angelica.[75] In Australia, the leading wineries such as Seppeltsfield or Penfold's also had distilleries, and dessert wines were becoming increasingly important in the years up to 1914.

Table 3

Leading wine-makers in South Australia, 1868, 1876 and 1903

	1868		1876		1903	
Vineyards	Quantity produced	% of SA production	Quantity produced	% of SA production	Quantity produced	% of SA production
Largest three	1,637	4.4	4,546	20.3	42,960	37.0
Largest five	2,546	6.9	6,428	28.7	57,962	49.9
Largest ten	5,231	14.2	9,966	44.4	78,191	67.4
Total State vintage	36,919		22,422		116,082	

Quantities in hectoliters

Sources: Bell, 1993, Table 3 and Whitington, 1903, p.71.

There were four major players in the Californian wine industry in the late nineteenth century: grape producers, wine-makers, San Francisco shippers and the East Coast bottlers and distributors.[76] The rapid growth of the national market required new coordination arrangements between these businesses so that the high levels of capital investment in vineyards and wine making equipment were not left idle. Faced with falling prices and widespread adulteration of wines, the small wine makers established the California Wine-Makers Corporation (CWMC) in 1894 which entered into a five year agreement to sell their wine to the California Wine Association (CWA), another combine created in the same year by the leading West Coast dealers. By 1897 the CWMC represented 80 per cent of California's wine-producers while the CWA had 80 per cent of the wine. [77] However, post-contractual opportunistic behavior led to a 'wine war' between the two organizations, with the CWA supposedly refusing to pay the

[75] Calculated from the California. State Agricultural Society (1915), p.140.
[76] This section is a summary of Simpson (2008)
[77] Peninou and Unzelman (2000),p.79.

prices previously agreed, and the CWMA selling large quantities of wine directly to a New York merchant rather than through the San Francisco merchants, and in violation of its contract. After its legal defeat in 1899 the CWMC disappeared, leaving the field to the CWA. According to a recent history, the CWA between 1894 and Prohibition would 'cultivate more vineyard acreage, crush more grapes annually, operate more wineries, make more wine, and have a greater wine storage capacity than any other wine concern in the world'.[78] This was horizontal consolidation and vertical integration – from grape growing to distribution – on a massive scale.

The objective of the CWA was not fine wines but to develop a mass market for stable and unadulterated ones. As one critic noted, the company 'never sold a bad bottle of wine', but neither did it sell a 'great bottle'.[79] Percy Morgan, for many years the CWA's chairman, noted in 1917 that forward integration helped create new markets for California's wines:

> Until the coming of the California Wine Association only a few wineries tried to deliver their original packages direct to the consumer and build up a following for their label. The large dealer almost always sold California wines in bulk to distant jobbers who either bottled them with a domestic or foreign label known to their particular localities, or sold them to retailers who pursued a similar course. Moreover, these distributors and retailers had neither the knowledge not the facilities to age and handle wines properly. Only a large firm with capital could select from millions of gallons, blend to standards, market under labels that could gain the confidence of the public, and stand back of the label wherever sold.[80]

Consolidations to escape price competition were common in the United States in the capital-intensive, mass-production industries in which 'firms were closely matched and in which expansion had been rapid on the eve of the Panic of 1893'.[81] The possibilities of collusion in the wine market was very difficult, but by integrating forwards and controlling distribution, the CWA was able to obtain higher prices in urban markets and guarantee a market for its own wines. Because of its scale, the CWA could blend wines in sufficiently large quantities to create a standardized product, and provide consumers with a guarantee that the wine was not adulterated. It also provided the necessary market stability for it to invest in brand names, and growers in California probably suffered less during the turbulent 1900s than any other wine growing region in the world.

[78] Peninou and Unzelman (2000), p.33.
[79] Amerine and Singleton (1976 ed.), p.286.
[80] Percy Morgan, 1917, cited in Peninou and Unzelman (2000), p.125.
[81] Lamoreaux (1985), pp.45 and 87.

The high entry costs to marketing wines on the US East Coast before Prohibition were therefore overcome by a producer-led commodity chain. By contrast in Australia, it was a market-led chain which was created to sell wines in London.[82] Trade was dominated by two major London houses that specialized in Australian wines: Walter Pownall, and in particular Peter Burgoyne, who claimed in 1900 that over the previous thirty years 'fully 70 per cent of the wine exported from Australia to England had passed through his hands'. [83] In 1893 Burgoyne bought the Mount Ophir vineyard (Victoria), and investment in new wine making facilities from the turn of the century led one commentator to report that 'it would be difficult to find in any part of the world a winery in which California labor saving appliances and the most approved European methods of securing the best treatment of the wine are so completely adopted'. Large quantities of grapes and wine were brought also from other producers, blended to create a standard product that was exported after nineteen months. Burgoyne (and Pownall) had agents who selected wines in Australia, while in London the firm had around 4,500 hogsheads of wine in bond, and a similar quantity at the Pelham Street premises in 1912. Wines were sold by the cask and the bottle, using the *Ophir* (Burgoyne) and *Emu* (Pownall) brands. 'Burgoyne's Australian Wine' placards were found 'on every railway station in England', and the Company claimed to have invested £300,000 in advertising. Finally, from the turn of the twentieth century, Burgoyne started a retail trade in Australia itself.[84]

The control of the British market by these two importers encouraged producers to look to their state governments to intervene directly in the market, either by creating generic State brands (later 'Australian' brand) which 'guaranteed' the quality of the wines, or by creating a wholesale wine depot in London itself, such as the South Australian government did in 1894. Opposition from Burgoyne and the London trade press was immediate and vitriolic, and led to a trade boycott in the United Kingdom.[85] Although the Depot claimed to have sold South Australian wine to over 4,000 customers, 'including most of the best wholesale houses in London and the provinces,

[82] See Gereffi, Korzeniewicz, and Korzeniewicz (1994) for a general definition, and Simpson (forthcoming) for a discussion of the wine industry. Australia exported at this time to the United Kingdom dry red table wine often referred to as a 'Burgundy type', which was somewhere 'between the heavily fortified wines on the one hand, and light wines, such as clarets and hocks on the other'. Australian Vigneron), March 1902, p.236.
[83] Australian Vigneron), September 1900, p.115.
[84] Simpson (2009b)
[85] Proceedings of the Parliament of South Australia (1901), p.68, 2297. Thomas Hardy noted that 'the large buyers would not touch the depot'.

large wine merchants, and grocers, as well as a number of high-class restaurants and clubs, who are now retailing the depot wines' in 1900, and sales had increased three fold over five years, they were still just a fifth of what Burgoyne handled.[86] The experiment ultimately failed because of limited management skills, lack of capital to mature wines, and the inability of the Depot to blend wines that it did not legally own. At the turn of the century, both the South Australian and Victorian governments held parliamentary enquiries into the potential advantages of central wine depots for the wine trade. Two questions in particular were debated: whether operations should be located at home in Victoria or South Australia, or in London; and whether the body should be a public or private institution. Many, such as Thomas Hardy and Arthur Perkins, believed that the wine depot should be located domestically for the purpose of buying, blending and maturing young wines for the London market.[87] However, Burgoyne's threat of buying wines only after their arrival in London rather than in Australia, led to opposition from leading domestic producers to the Depot, as they feared having to risk sending their wines to London at their own cost, and accept whatever merchants were willing to pay once it was there. Despite these problems, Australia was the only New World country with an important export trade, accounting for about a fifth of national production in the period 1909/13, and with virtually all being sold to the United Kingdom.[88]

The success of the CWA and Burgoyne in restricting competition in their chosen markets did not go unnoticed by producers of cheap table wines in Europe, where some contemporaries believed that collective action by the growers themselves could raise prices. A couple of ambitious attempts were backed by the very large landowners in the Midi who had heavily over borrowed before 1900. [89] Bartissol in 1905 planned a marketing board that would sell annually 20 million hectoliters of branded wine in bottles directly to consumers. In case of overproduction, all growers would absorb the costs of distilling to reduce supply to support prices. However, many growers were reluctant to sign long-term contracts with an independent company. Even if a monopoly such as this might have increased wine prices, the capital requirements (300 million francs) and logistics of such a huge operation led to it remaining just a project. Palazy's proposal in 1907 was more modest and involved the direct participation of growers,

[86] Proceedings of the Parliament of South Australia (1901), p.iii.
[87] Proceedings of the Parliament of South Australia (1901), p.iv.
[88] Australian Vigneron), March 1902, p.236.
[89] Atger (1907), pp.116-22, Degrully (1910), pp. 375-85, Postel-Vinay (1989), pp.180-1.

who would sell wine to wholesalers and retail merchants. With a capital of just 48 million francs, growers were required to enter agreements for five year, and the company hoped to sell a minimum of 12 million hectoliters of wine. Although it claimed to have 20,000 members and to control nine millions liters of wine, it failed in 1906 as the *Société Civile de Producteurs de vins naturels du Midi et de l'Algérie* and in 1909 as the *Société Coopérative de Producteurs du Vins naturels du Midi*, to negotiate discount privileges with the Bank of France and the Ministry of Finance.[90] The major problem however was one of commitment, as growers were required to contribute to creating the company, but the potential benefits of higher prices would be enjoyed by all, whether they were members or not. As a result, when overproduction and low wine prices reappeared in the 1930s, growers looked directly to the state to resolve them, rather than create a private monopoly. Transaction costs associated with compliance were reduced and absorbed by the state, with the resulting legislation (*Statut du Vin*) both regulating markets and helping the small producers. From the 1950s intervention increased, and spread to other European states, allowing the small family grower to remain prominent today.

Conclusion.

This paper has argued that the present day organization of the wine industry has historic origins which were clearly visible before 1914. The distinct sets of economic institutions that arose in different places were chosen not as an efficient adaptation to diverse environments, but rather for their distributional consequences. In Europe, cooperatives and regional denominations (later *appellation d'origine contrôlée*) helped to shift market power away from merchants towards small producers. The situation is most apparent in France, where farm groups in the late nineteenth century were supported by politicians of the Third Republic in their attempts to wrest control of the countryside away from the conservative, rural aristocrats and royalists. As Jules Ferry declared in 1884, 'the Republic will be a peasants' republic or it will cease to exist'.[91] While French politicians adopted policies that protected growers' interests, the rural elites in Spain and Portugal continued to enjoy considerably more political power. With the exception of port, the state was unwilling to back the creation of appellations or provide sufficient finance for cooperatives. Both institutions became common only from

[90] Caupert (1921), p.64-5.
[91] Wright (1964), p.13.

the 1950s when they performed important regulatory functions in exchange for public revenue. Cooperatives were obliged to remove surplus wine from the market, while appellations required growers to uproot high yielding vines and limit output.

Wine production in Australia and California was always less important and growers were never able to exert similar levels of political influence. In part this was because of the difficulties in selling to consumers who were unacquainted with wine, and lived at considerable distance from the areas of production. In California this led to the consolidation of wine maturing and marketing in a single enterprise, based in San Francisco. After Prohibition, when the industry effectively had to start again from scratch, integration occurred once more, but this time it was out of state firms that moved into California and bought up the wineries.[92] A similar storey is true in Australia, where Burgoyne's influenced disappeared after 1914 with the growth in the British demand for dessert rather than dry table wines, and large vertically integrated wine companies sold wines through state organized depots. In the New World, the rapid growth of viticulture and the incorporation of the new wine making technologies after 1890 allowed producers to plan a new industry. By contrast in Europe many wine regions were already well established prior to 1890, and growers and wine makers had instead to adapt to compete with the new areas of production.

The set of economic institutions chosen on the eve of the Great War was a major factor in determining the future structures of the industry. In Europe, the small family grower has continued to enjoy the protection of the state, although the nature of institutions such as cooperatives and *appellation d'origine contrôlée* has adapted to reflect the shifts in economic and political influence of producers. While grape growers have demanded stable markets and a commercial future, governments have attempted to address structural problems of overproduction and short term gluts by requiring cooperatives to hold back stock and distill surplus wine, and growers to join appellations to improve wine quality, and indirectly reduce yields.

[92] Lapsley (1996).

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2005. Institutions as a fundamental cause of long-run growth. In *Handbook of Economic Growth*, edited by P. Aghion and S. N.Durlauf: Elsevier.
Adams, Leon David. 1973. *The wines of America*. Boston: Houghton Mifflin.
Allen, Douglas W, and Dean Lueck. 2002. *The Nature of the Farm. Contracts, Risk, and Organization in Agriculture*. Cambridge, Massachusetts and London: MIT Press.
Amerine, M. A., and Vernon L. Singleton. 1976 ed. *Wine: an introduction*. Berkeley: University of California Press.
Anderson, Kym, David Norman, and Glyn Wittwer. 2004. The global picture. In *The World's Wine Markets. Globalization at work*, edited by K. Anderson. Cheltenham: Edward Elgar.
Antúnez, L. 1887. *Informe sobre la crisis actual de las industrias pecuarias y vitivinícola*. Barcelona.
Atger, Frédéric. 1907. *La crise viticole et la viticulture méridionale (1900-1907)* Paris.
Augé-Laribé, Michel 1907. *Le problème agraire du socialisme: la viticulture industrielle du Midi de la France*. Paris.
Australian vigneron and fruit-growers journal.
Ayuda, Vicente Pinilla and Maria-Isabel. (2002). The political economy of the wine trade: Spanish exports and the international market, 1890-1935. *European Review of Economic History* 6:51-85.
Bioletti, Frederic T. 1905. *Manufacture of dry wines in hot countries*. Vol. 167. Sacramento: University of California, College of Agriculture, Agricultural Experiment Station.
Brennan, Thomas 1997. *Burgundy to Champagne. The wine trade in early modern France*. Baltimore and London: The Johns Hopkins University Press.
California. State Agricultural Society. 1915. *Report of the California State Agricultural Society for 1914*. Sacramento: The Society.
California. State Board of Agriculture. 1915. *1914*. Sacramento.
Carmona, Juan, and James Simpson. (1999a). The "Rabassa Morta" in Catalan Viticulture: The Rise and Decline of a Long-Term Sharecropping Contract, 1670s-1920s. *Journal of Economic History* 59:290-315.
———. 2007. Why sharecropping? Explaining its presence and absence in Europe's vineyards, 1750-1950 In *Universidad Carlos III de Madrid, Working Papers in Economic History, 07-11*.
Castella, Hubert de. 1886. *John Bull's Vineyard*. Melbourne: Sands & McDougall.
Caupert, Maurice. 1921. *Essai sur la C.G.V.* Montpellier.
Clique, Hubert 1931. *Les caves coopératives de vinification en Bourgogne*. Paris.
Coello Martín, Carlos. 2008. *Las Bases Históricas y Administrativas del Derecho Vitivinícola Español*. Sevilla: Instituto Andaluz de Administración Pública.
De Vries, Jan. 1984. *European urbanization, 1500-1800*, *Harvard studies in urban history*. Cambridge, Mass.: Harvard University Press.
Degrully, Paul. 1910. *Essai historique et économique sur la production et le marché des vins en France* Montepellier: Roumégous.
Duguid, Paul, and Teresa da Silva Lopes. (1999). Ambiguous Company: Institutions and Organizations in the Port Wine Trade, 1814-1834. *Scandinavian Economic History Review* xlvii:84-102.
Fernández García, Eva. 2008. Productores, comerciantes y el estado: regulación y redistribución de rentas en el mercado de vino en España, 1890-1990, Universidad Carlos III de Madrid, Ph.D. thesis.
Ferrouillat, Paul, and M. Charvet. 1896. *Les celliers: construction et matériel vinicole avec la description des principaux celliers du Midi, du Bordelais, de la Bourgogne et de*

l'Algérie, *Bibliothèque du Progrès agricole et viticole*. Montpellier; Paris: C. Coulet; G. Masson.
Ford, Richard. 1848: 1970. *Gatherings from Spain*. London.
Frader, Laura Levine 1991. *Peasants and protest: agricultural workers, politics, and unions in the Aude, 1850-1914* Berkeley, Los Angeles and London.
Galassi, Francesco. (1992). Tuscans and their farms: the economics of share tenancy in fifteenth century Florence. *Rivista di storia economica* 9:77-94.
Genieys, Pierre 1905. *La Crise viticole méridionale*. E.Privat: Toulouse.
Gereffi, Gary, Miguel Korzeniewicz, and Roberto Korzeniewicz. 1994. Introduction: global commodity chains. In *Commodity Chains and Global Capitalism*, edited by G. Gereffi and M. Korzeniewicz. Westport and London.
Gervais, Misaël 1914. *La coopération en viticulture*. Paris: Bailliére et fils.
Gide, Charles. (1901). La Crise du vin en France et les Associations de vinification. *Revue d'économie politique* xv:217-35.
———. 1926. *Les associations coopératives agricoles*. Paris: Association pour l'enseignement de la coopération.
———. 1927. *La coopération dans les pays latins: Amérique latine, Italie, Espagne, Roumanie, 1926-1927*. Paris: Association pour l'enseignement de la coopération.
Hoffman Elizabeth and Gary D. Libecap. (1991). Institutional Choice and the Development of U.S.Agricultural Policies in the 1920s. *The Journal of Economic History* 51:397-411.
Hoffman, Phillip. (1984). The Economic Theory of Sharecropping in Early Modern France. *Journal of Economic History* 42:155-162.
Husmann, George. 1888. *Grape culture and wine-making in California; a practical manual for the grape-grower and wine-maker*. San Francisco: Payot, Upham & co.
International Institute of Agriculture. 1915. *Monographs on Agriculture. Co-operationin various countries*. Vol. two. Rome: International Institute of Agriculture.
Isnard, Hildebert. 1954. *La vigne en Algérie; étude géographique*. Vol. 2 vols.: Ophrys-Gap.
Labrousse, Ernest. 1944. *La crise de l'economie francaise a la fin de l'ancien regime et au debut de la revolution*. Paris: Presses universitaries de France.
Lachiver, Marcel 1988. *Vins, vignes et vignerons. Histoire du vignoble français*. Paris: Fayard.
Lamoreaux, Naomi R. 1985. *The great merger movement in American business, 1895-1904*. Cambridge; New York: Cambridge University Press.
Lapsley, James T. 1996. *Bottled Poetry. Napa winemaking from Prohibition to the Modern Era*. Berkeley, Los Angeles and London.
Law, M. T., and G. D. Libecap. (2004). The Determinants of Progressive Era Reform: The Pure Food and Drugs Act of 1906. *Working paper series.* (NBER, 10984).
Law, Marc (2003). The origins of State Pure Food Regulation. *Journal of Economic History*:1103-30.
Loubère, Leo A. 1990. *The Wine Revolution in France. The Twentieth Century*: Princeton University Press.
Mandeville, Léonce. 1914. *Étude sur les sociétés coopératives de vinification du midi de la France*. Toulouse: Impr. Douladoure-privat.
Muscatine, Doris, M. A. Amerine, and Bob Thompson. 1984. *The University of California/Sotheby book of California wine*. Berkeley, Los Angeles; London: University of California Press; Sotheby Publications.
Nourrisson, D. 1990. *Le buveur du XIXè siècle*. Paris: Albin Michel.
Olson, M. 1965. *The Logic of Collective Action*. Cambridge: Harvard University Press.
Pacific Wine & Spirits Review.
Pech, R. 1975. *Entreprise viticole et capitalisme en Languedoc Roussillon*. Toulouse: Association des publications de l'Universite de Toulouse-Le Mirail.
Peninou, Ernest P., and Gail G. Unzelman. 2000. *The California Wine Association and its member wineries, 1894-1920*. Santa Rosa, CA: Nomis Press.

Pinchemel, Philippe. 1987. *France. A geographical, social and economic survey*: Maison des Sciences de l'Homme and Cambridge University Press.
Pinney, Thomas. 1989. *A history of wine in America: from the beginnings to prohibition*. Berkeley: University of California Press.
Postel-Vinay, Gilles. (1989). Debt and agricultural performance in the Languedocian vineyard, 1870-1914. *Research in Economic History* (supplement 5):161-86.
Proceedings of the Parliament of South Australia. 1901. Report of the Wine and Produce Depôt.
Roberts, Edwards. (1889). California Wine-Making. *Harper's Weekly* xxxiii (March 9):197-200.
Roos, L. 1900. *Wine making in hot climates*. Melbourne: Victoria Dept. of Agriculture.
Rosés, Joan, and Blanca Sánchez-Alonso. (2004). Regional wage convergence in Spain, 1850-1930. *Explorations in Economic History*.
Seff, James, and John F.Cooney. 1984. The Legal and Political History of California Wine. In *The Book of California Wine*, edited by D. Muscatine, M. A. Amerine and B. Thompson. Berkeley, Los Angeles, London: University of California Press / Sotheby Publications.
Simon, André. 1966. *The Wines, Vineyards and Vignerons of Australia*. London: Hamlyn.
Simpson, James. 2000. Cooperation and Cooperatives in southern European Wine Production. In *Advances in Agricultural Economic History*, edited by K. Kauffman.
———. (2004). Selling to Reluctant Drinkers: the British Wine Market, 1860-1914. *Economic History Review* LVII (I):80-108.
———. (2005). Cooperation and conflicts: institutional innovation in France's wine markets, 1870-1911. *Business History Review* 79 (Autumn):527-558.
———. 2008. California and the creation of a modern wine industry: 1860-1919. In *Universidad Carlos III de Madrid, Working Papers in Economic History, 08-14*.
———. 2009b. Australian wine: the creation of an export sector, 1840-1914. In *Universidad Carlos III de Madrid, Working Papers in Economic History, 09*.
———. forthcoming. *The first wine revolution: the creation of an international commercial industry, 1840-1914*: Princeton University Press.
Smith, Harvey. (1975). Work Routine and Social Structure in a French Village: Cruzy, Hérault in the Nineteenth Century. *Journal of Interdisciplinary History* 5:357-382.
Stanziani, Alessandro. (2003). La falsification du vin en France, 1880-1905: un cas de fraude agro-alimentaire. *Revue d'histoire moderne e contemporaine* 50 (2):154-186.
———. (2004). Wine Reputation and Quality Controls: The Origin of the AOCs in 19th Century France. *European Journal of Law and Economics* 18:149-167.
Sullivan, Charles L. 1998. *A companion to California wine: an encyclopedia of wine and winemaking from the mission period to the present*. Berkeley.
Valentinov, Vladislav. (2007). Why are cooperatives important in agriculture? An organizational economics perspective. *Journal of Institutional Economics* 3:55-69.
Victoria. 1900. *Royal Commission on Refrigerating Stores and Central Wine Depôt. Report on Central Wine Depôt*. Melbourne: Government Printer.
Vitu, Henri. 1912. *La question des délimitations régionales*. Paris.
Warner, Charles K. . 1960. *The Winegrowers of France and the Government Since 1875*. New York: Columbia University Press.
Williamson, Jeffrey G. (1995). The Evolution of Global Labor Markets since 1830: Background Evidence and Hypotheses. *Explorations in Economic History* 32 (2):141-196.
Wright, Gordon. 1964. *Rural Revolution in France. The Peasantry in the Twentieth Century*. Stanford and London: Stanford University Press.
Young, Arthur. 1794. *Travels during the Years 1787, 1788 and 1789, undertaken more particularly with a view of ascertaining the cultivation, wealth, resources, and national prosperity, of the Kingdom of France*. 2 vols. Bury St.Edmunds 2nd.volume: W.Richardson.